

COR - 0654

NRO REVIEW COMPLETED

29 October 1959

MEMORANDUM FOR: Deputy Director (Plans)



THROUGH : Acting Chief, DFO

SUBJECT : Handling of CORONA Payload at Assembly Facilities

REFERENCE : [redacted] (OUT 54042)

1. Attached for your information are:

- a. A report by [redacted] on conditions at the Vandenberg "L" Building facility, with reference attached.
- b. The Lundahl memo on conditions at [redacted] (on which you requested Mr. Kiefer's and my comments).

2. One of the useful by-products of having [redacted] instead of EMD, accept the payload has been the opportunity that this gave him of spending several days at the "L" Building at Vandenberg and of seeing what actually took place during the final phases of readiness for flight number seven. As you will see from his report he found that the conditions in the building, and the methods used in handling film and camera, were not satisfactory. Accordingly, on his return, he prepared the referenced cable requesting several corrective actions. This we have sent to EMD for comment and I hope to forward it to LMSD promptly.

3. [redacted] of PIC were the authors of the quoted paragraph in Mr. Lundahl's memo. Mr. Kiefer and I went over the findings with them. In general, there was a common feeling that camera and film are not being handled at the [redacted] facility with the care that they should from a photographic standpoint. Although this negative reaction was not accompanied by any specific recommendations on PIC's part as to changes that should be made, we feel that conditions can be sufficiently improved:

- (1) Through making the changes at "L" Building requested in the referenced cable,
- (2) Through a like review by [redacted] of conditions and methods at [redacted]. This he will do when he accepts the next payload, this time at [redacted]

4. We have felt for some time that [ ] is not equal to his job and that this weakness might have a real relationship to the program failures. We found that BMD agreed and accordingly Colonel Odear recently made the point to LMD. I have just heard that Jim Plummer is taking direct charge of the [ ] and this should be of help in curing the ills found by [ ]

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[ ]  
Chief, Development Branch  
DPD-DD/P

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Attachments:

1. DPD-7417-59, dated 29 October 1959
2. DD/P 4-8806, dated 14 October 1959

DE/DPD-DD/P: [ ]

Distribution:

- Orig & 1 - Addressee, w/atts 1 & 2
- 1 - A/Ch/DPD, w/atts 1 & 2
- 1 - Ops/DPD, w/atts 1 & 2
- 1 - Ch/DB, w/atts 1 & 2
- 1 - RI/DPD, w/atts 1 & 2



000-7417-75

27 October 1959

MEMORANDUM FOR THE RECORD

SUBJECT: Trip Report of [REDACTED]

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1. During the period of 20 October 1959 to 26 October 1959, the undersigned with Colonel C. Murphy, [REDACTED] (of the project), Major S. Conroy (LNO), and Mr. E. L. Green [REDACTED] visited Vandenberg Air Force Base to accept payload section for flight 1051 and to review film handling and pre-flight procedures employed at L Building.

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2. Unit 109 was shipped to Vandenberg AFB on Saturday, 17 October and camera 38-10 was shipped on Wednesday, 21 October. All documentation, s.i., camera log, and test records were shipped with the camera. The above team arrived at Vandenberg AFB a few hours after arrival of the camera. Review of test records and the camera log by Colonel Murphy, Major Conroy, and the undersigned revealed records to be insufficient and not up to date, preventing immediate acceptance of the payload section. Records indicated that there had been a camera part malfunction on the last RAT's test, and that a film break occurred on the tests run at Palo Alto on 17 October. Additional documentation received later from Palo Alto indicated the camera had only about 300 cycles of satisfactory operation prior to shipment to Vandenberg AFB. In light of information contained in camera log and test data, it was deemed necessary to conduct further operational tests before acceptance could be made of the payload unit for flight 1051. It was agreed that these tests would be made during systems check at the pad and after the unit had been returned to the L Building. No attempt was made to clean the instrument for these tests; however, the unit was configured (including all changes, such as installation of the new gullotine), as near flight configuration as possible. (It seems this is not considered standard practice by the Vandenberg AFB LNO team prior to systems runs.) By insisting on this procedure many discrepancies were noted in the established pre-flight procedures.

3. The LNO team, although being very capable in preparing the vehicle for launch, does not have, as a team member, anyone with sufficient background and/or experience to adequately prepare aerial photographic equipment for flight.

4. The conditions of the clean room and the balance of the I Building are more like a factory assembly area than the type of area required for handling and pre-flight specialized photographic equipments. The area is sadly lacking in cleanliness and equipments for the functions to be performed. It seems that no consideration has been given to lighting conditions during loading of the payload into the instrument or during the time the instrument firing is initiated to the main cone. Under the conditions proposed, fogging of the payload can occur.

5. Although extreme care has been exercised in delivering the payload (film) to Vandenberg, it was noted that operational film, although kept in air conditioned area, is stacked on the floor where damage could occur. Camera spools, although notices are attached to each film can indicating that spools are never to be stood on flanges, were placed on flanges under workbenches. A check of all these spools showed all flanges to be damaged. It was also noted that all operational rolls of film had been opened before intended use, increasing the danger of fogged film.

6. The following pieces of equipment are considered necessary and should be procured for the I Building at the earliest possible date.

- a. Film Storage Bins
- b. Spool Storage Bins
- c. Safe Lights, necessary wiring and switches
- d. Film Splicer
- e. Viewing Table
- f. Film Processor

Since the camera must be moved from the clean room, after loading, to an area in the I Building without air conditioning, it is recommended that additional air conditioning equipment be procured to air condition the complete building. Also, that provisions be made to darken the area during the period the camera section firing is being initiated to the main cone.

7. It is felt that we should draw upon the experience we have obtained on the CHALICE program and apply it to the CHALICE operation. It is, therefore, recommended that the above be reviewed with WFO and WSO with the recommendation that the present team be increased to include a photographic pre-flight technician. This member should be authorized from a photographic stand point to approve the complete payload section for flight. His duties should include:

- a. Maintenance of the dark room area in a manner comparable to the way the special equipment sections are maintained in the CHALICE program.

- b. Maintenance of film supply and spares, e.i., film spools and etc.

- c. Processing and evaluation of test film.
- d. Loading the instrument.
- e. Supervision of instrument operation during systems check.

d. In view of the camera failures experienced on 17 October and 20 October, it was deemed necessary to make a close inspection of the instrument prior to the above reference systems check and acceptance of the unit. The following items were noted:

a. The cassette take up spool was found to have sharp burrs on the inside edge of one flange. This item had been installed at Palo Alto and was considered ready for flight. Such burrs, however, could have caused a film break in flight.

b. The torque on the supply spool torque motor was found to exceed 10 lbs. This possibly could have backed up the supply spool enough to pull the handmade splices into the instrument and again be a possible cause for a film break in flight. The torque motor was readjusted after the pre systems check to 2 lbs or less.

c. It was also noted that leader running through the instrument had scratches throughout the furral area. Although camera platten rails can be removed for the cleaning, pressure plates for the instrument cameras cannot be removed and emulsion or film base build up in these areas might be causes for film breakage at altitude. However, film exposed on the pre system check and processed at [ ] shows no evidence of scratching during transport of thin base material.

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It was noted the new high-temperature torque motor had been installed, although a unit of this type had not been qualified (however, qualification was expected prior to flight also). Later checks have revealed that the only motor received to date is installed on camera #10. Qualification must wait for further deliveries.

9. Other items noticed during inspection of the payload unit are considered by the undersigned to be possible risk items for flight 1051 and should be reviewed for possible improvement for any subsequent flights:

a. Stowed Rollers - Present rollers are film edge supporting and show evidence of heavy squeezing on the edges of the film while the camera is operating. This is an area that might cause a film break in flight. It is recommended that consideration be given to installing the old beaded stow roller or a roller of a new design. (P & I seems to have a new improved roller design of this type.)

b. Film Tension - Film tension seems to fluctuate throughout the camera system during operation. This has always been a possible

cause for improper film tracking or film wrap around causing film breaks. It was most noticeable from the supply spool under the first show roller and to the input entering rollers. The undersigned considers this flutter or uneven film tension to be excessive at this point. The complete film path should be reviewed with the view to insuring constant film tension throughout the system.

10. In view of the above, the following are recommended:

- a. That Headquarters, working with LSCD review acceptance space for the various areas and devise a simplified workable document that will show numerical limits or other acceptable limits and the results of all tests performed by LSCD. This will expedite acceptance of each unit.
- b. That LSCD be encouraged to complete all work and modifications, recommended for each flight unit, at Palo Alto prior to shipment to Vandenberg AFB.
- c. That Headquarters, in cooperation with DOD, aid LSCD in establishing pre-flight SOP's to be used during the I Building count down prior to launch. Also, aid LSCD (if necessary) in the selection and training of a photographic pre-flight technician. It is recommended that this person be permanently assigned to the LSCD I Building.
- d. That all equipments mentioned in paragraph 6 be procured and installed in the I Building at the earliest possible time.
- e. That the undersigned or a team consisting of the undersigned, Mr. E. L. Green (or representative) with a LSCD representative make periodic visits to Vandenberg AFB to insure implementation and compliance with the above recommendations. These visits should be made at least once every 30 days.

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[Redacted Signature Box]

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Attachment:

[Redacted Box] (OUT 51042)

Distribution:

1 - DE/P w/att	1 - Operations
1 - A/Ch/OPS	1 - DB [Redacted Box]
1 - C/DB	1 - Contracts
1 - Security	1 - RI

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